International Journal of Engineering & Technology

by Leny Nofianty

International Journal of Engineering & Technology, 8 (1.8) (2019) 159-163

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Environmental information disclosure and firm valuation : corporate governance as moderating variable

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Abstract

Environmental issues have become an important topic in current accounting practice, especially in Indonesia. The government and public have been paying attention to this environmental issue for decades. The firm which discloses environmental information tends have been responded positively by investors. The response will tend to have an impact on firm valuation. Besides that the role of good corporate governance can also strengthen the relationship between environmental information disclosure and firm valuation. This study aims to examine the influence of environmental information disclosure on firm valuation. Specifically, this study investigates the effect of environmental information disclosure on firm valuation with corporate governance as moderating variable. Populations in this study were manufacturing firms listed in Indonesia Stock Exchange for the 2015 financial year and purposive sampling is used as a sampling method. The data were taken from firm's annual report. The result from PLS analysis reveals that environmental information disclosure affect firm valuation. In addition, the result also suggests that the effect of environmental information disclosure on firm valuations is moderated by role of corporate governance.

Keywords: *Environmental Information Disclosure; Firm Valuation; and Corporate Governance.*

1. Introduction

Various environmental problems indirectly in the long term can affect the value of the firm (Wang, 2016). Public awareness of the environment that increasingly make the company cannot escape from the responsibility of the environment (Wiseman, 1982). Damage and environmental pollution arising from operating activities into environmental costs. Therefore, the management of the company needs to manage the operational activities well so as not to cause side effects that cause environmental pollution and ultimately result in the cost to cope with environmental pollution (environmental cost). In addition, if the company wants to achieve its objectives, the company should pay more attention to the disclosure of environmental information (Olayinka and Oluwamayowa, 2014).

The disclosure of environmental information can be defined as a general term describing the ways in which firms disclose information about their environmental activities to users of financial statements (Wiseman, 1982). Disclosure is required because of the importance of the environment and the destructive impact of corporate activities on the environment. This has led to the emergence of many global institutions that incorporate the norms that guide human interaction with the environment (Patten, 2002). Some accounting literature has explored the value relevance of non-financial information (Barth and McNichols, 1994; Hughes, 2000; Amir and Lev 1996; Olayinka and Oluwamayowa, 2014). Non-financial information can explain the firm valuation. It has been argued that non-financial information such as environmental disclosure has a greater responsibility component in the capital market.

One factor that enhances firm valuation is not only from environmental information disclosure, but also strengthened by the role of corporate governance (Wang, 2016). Good corporate governance is control efforts by the firm to improve performance management by making control more focused on monitoring the behavior of the manager (Subramaniam et al., 2009). So that the action taken by the manager is accountable to the parties with an interest in the firm. The McKinsey company found that investors who found firms with good corporate governance in Asian countries were willing to pay a premium price, more than 20%, to acquire such firms (Wang, 2016). Corporate governance variables can be used for a thorough and accurate assessment of the firm's equity value (Koh et al.,2007). Furthermore, the role of corporate governance is very important in strengthening the relationship of environmental information disclosure and firm valuation (Wang, 2016).

We collected data in Indonesia context. Previous studies have sought to establish a relationship between environmental information disclosure and firm valuation, measured through profitability (Ngwakwe, 2008; Oba et al 2012; Uwuigbe et al 2012). The extant literature mainly focuses on the context in Taiwan (Wang, 2016). Hence, few studies about environmental information disclosure and firm valua-

tion with corporate governance as moderating variable in non-Western countries have been published. Therefore, to the best of our knowledge, none of these studies have considered the forward-looking effect and overall long-term impact of environmental information disclosure on the firm and this are the main emphases of this study.
The purpose of this study is to examine factors contributing to the firm valuation, such as environmental information disclosure. Specifically, this study aims to investigate the effects of environmental information disclosure on firm valuation with corporate governance as moderating variable. The results of this study are expected to enhance our understanding of the positive effect of firm valuation. The remainder of the paper is organized as follow. The next section (Section 2) will present the relevant literature and hypotheses. This will be followed by the research method in Section 3, Empirical result and discussion in Section 4. The last section (Section 5) provides conclusions, limitations, and suggestions for future research.

2. Literature review

2.1. Environmental information disclosure and firm valuation

Investors need more in spread information about operations and management of firms (Healy and Palepu, 2001). One of the desired information disclosure is the environmental information disclosure of firms, that covers prevention and control of pollution, reclamation and conservation of the environment, and then known as the environmental information disclosure (Wiseman, 1982; Plumlee et al., 2010; Hossain et al., 2006). Environmental information disclosure can be communicated to the firm's stakeholders by several ways: mandatory information disclosure and voluntary information disclosure (Patten, 2002; Wang, 2016; Wiseman, 1982). Mandatory information disclosure is the disclosure of information which meets legal and regulatory requirements. While voluntary information disclosure refers to voluntary management disclosure.
The firm's goals are to increase the value of the firms. All of the firms will strive to achieve and retain firm value by maximizing performance. Environmental performance becomes to public concern because environmental issues are already a global issue (Hossain et al., 2006). Therefore, the firm is expected to provide complete information in the annual report to investors. Eipstein and Freedman (1994) argue that shareholders are more interested in social information about product safety and quality and about the firm's environmental activities reported in the firm's annual report. Environmental information disclosure will likely increase the firm valuation (Wang, 2016). This can be seen from the stock price as a result of the investors who invest in the firms (Lee and Yeo, 2015). The practice of disclosure of good environmental information, it is expected that the firm valuation will be assessed kind by investors. Then, environmental information disclosure will promote firm valuation. Based on above discussion, we suggest the following hypothesis:
H1: Environmental information disclosure has a positive effect on firm valuation.

2.2. The moderating role of corporate governance

Corporate governance consists of various elements (Subramaniam, 2009; Wang, 2016; Agrawal and Knoeber, 1996). Some of them are a board of commissioner's size, proportion of independent commissioners, the managerial ownership, and auditor reputation. A single performance element cannot improve firm valuation, given that corporate governance effectively improves the performance and value of operations (Wang, 2016). The firm valuation is the perception of investors to the success rate of a firm that is often associated with stock prices (Lee and Yeo, 2015). High stock prices make the value of the firm is also high. The high firm value will make the market believe not only in the firm's current performance but also on the future prospects of the firm.
Good corporate governance can increase the quality of information disclosure, then be reducing information asymmetry between investors and firm management (Botosan et al., 2004; Wang, 2016). Therefore, investors will get lower risk and help with firm valuation (Wang, 2016). Environmental information disclosure will have a positive impact on firm valuation if corporate governance is considered good by investors. In other words, the firm valuation will not enhance if corporate governance is considered bad by investors despite environmental information disclosure made by the firm. Investors tend to conduct invest in a firm if the firm has good corporate governance (Bedard et al.,2004). Furthermore, if investors are interested in investing, the demand for the firm's shares will tend to rise and stock prices will rise as well. In addition, firm valuation will increase in line with the strengthening role of corporate governance. Considering the aforementioned, we propose the following hypotheses:
H2: Corporate governance strengthens the relationship between environmental information disclosure with firm valuation.

3. Research method

3.1. Population, sample and data collecting

The population in this study is non-financial firms listed on Indonesia Stock Exchange (ISE) for the 2015 financial year. The purposive sampling is used with several criteria, namely, the manufacturing firm, listed on the ISE, published annual reports in 2015 and has complete information. Base on the criteria, from 148 firms, only 137 firms that full information. The data in this research was collected from annual report that is taken from official website of Indonesia Stock Exchange.

3.2. Measures

The dependent variable is firm valuation. Firm valuation is measured by using Tobin's Q ratio (Lee and Yeo, 2015) and taken from the ISE. This data is the calculation of Tobin's Q ratio of each observation that is sampled. To calculate Tobin's Q ratio required stock price closing data at the end of the period, the number of shares outstanding at the end of the year, a total book value of assets, book value of current debt, current assets, long-term debt and book value of inventory.
The independent variable is environmental information disclosure. Environmental disclosure is measured using the scoring method of the amount of environmental information disclosure present in the firm's annual report based on the environmental disclosure index. The environmental disclosure index developed by Wiseman (1982) and Hossain et al.,(2006) were used in this study. Wiseman (1992) and Hossain et al., (2006) identified eighteen environmental disclosure criteria that should be disclosed by firms related to their environmental performance. The use of these criteria is most appropriate for firms in developing countries (Wiseman, 1982 and Hossain et al., 2006). Therefore, the index was chosen for use in this study because it is in accordance with the conditions in Indonesia that still include devel-

oping countries. Sample criteria include "The past and current operating costs of pollution control equipment and facilities and recycling plant of waste products".

The moderation variable is a variable that strengthens or weakens the direct relationship between the independent variable and the dependent variable. Corporate governance is used in this study as a moderating variable to find out the direct relationship between environmental information disclosure variables and firm valuation. Corporate governance is measured by four indicators as follow: board of commissioner's size, the proportion of independent commissioners, the managerial ownership and auditor reputation (Subramaniam et al., 2009; Wang, 2016).

3.3. PLS analysis

Partial Least Square (PLS) analysis was used to test the hypotheses. The analysis was applied because of one of the variables being studied was measured with formative indicators (Chin, 2010; Hair et al. 2012; Hair et al., 2014). The first step in PLS analysis is assessment the measurement model (outer model evaluation). For formative indicators, "the assessment of the relevance of the indicators involves comparing the weights of the indicators to determine their relative contribution to forming the construct" (Hair et al, 2014). The last step in PLS analysis is assessment the structural model (inner model evaluation) (Anugerah et al., 2016b; Chin, 2010; Hair et al., 2012; Hair et al., 2014).

Table 1: Output Indicator Weight, Full Collinearity VIF, R Square

Variable	Measures/Ratios	Indicator weight-loading	Standard Errors	Sig.	VIF	Full Collin VIF	R Square
Environmental Information Disclosure (EID)	EID	1.000	0.068	$p<0.01$	0.000	1.116	
	BOC	0.433	0.077	$p<0.01$	1.813		
Corporate Governance	Ind.Com	0.241	0.081	$p<0.01$	1.119	1.844	
	MO	0.358	0.079	$p<0.01$	1.315		
	Big Four	0.359	0.079	$p<0.01$	1.508		
Firm Value	Tobin's Q	1.000	0.068	$p<0.01$	0.000	1.326	0.236
	BOC*EID	0.397	0.078	$p<0.01$	2.469		
Corporate Governance* EID	Ind.Com*EDI	0.301	0.080	$p<0.01$	1.307	1.590	
	MO*EID	0.314	0.079	$p<0.01$	1.51		
	Big Four*EID	0.310	0.079	$p<0.01$	1.721		

4. Empirical results

4.1. Measurement model analysis

Evaluation of measurement model for the formative latent variable using two criteria (Hair et al., 2014; Chin, 2010). Firstly, the weights linking the formative indicators with the variable must be significant (Hair et al., 2014). And secondly, the outer model indicators on each variable must be low collinearity. "The VIF threshold of 3.3 has been recommended in the context of PLS-based SEM in discussions of formative latent variable measurement" (Kock, 2014).

The column 5 of Table 1 (sig. test) shows that The column 5 of Table 1 (sig. test) shows that all indicators weights in each variable (include latent variable of moderating) lower than 0.01 (p-value<0.01). This explains that "formative latent variable measurement items were properly constructed" (Kock, 2014). Furthermore, column 6 of Table 1 (collinearity test) shows that Furthermore, column 6 of Table 1 (collinearity test) shows that the value of VIF for each variable lower than 3.3. This explains that each variable has low collinearity. Overall, the results from measurement model analysis for formative indicators have satisfied validity and reliability criteria for formative measurement (Hair et al., 2014; Kock, 2014).

4.2. Structural model analysis

This study aimed to this study investigates the effect of environmental information disclosure on firm valuation with corporate governance as moderating variable. The results of the structural model analysis with WarpPLS 6.0 are shown in Table 2.

The results revealed that environmental information disclosure has a positive effect on firm valuation (β=0.150, $p<0.01$). This supports H_1, which states that environmental information disclosure has a positive effect on firm valuation. The second hypothesis (H_2) is supported (β =0.381, $p<0.01$). The data proved that the effect of environmental information disclosure on firm valuation is moderated by corporate governance.

Table 2: PLS Results

Hypothesis Test	Path coefficient	Standard errors	Sig.	VIF
Environmental information disclosure → firm valuation	0.150	0.083	$p<0.01$	1.554
Corporate governance* environmental information disclosure → firm valuation	0.381	0.078	$p<0.01$	1.554

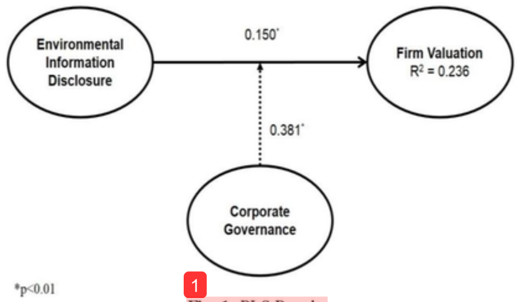

Fig. 1: PLS Results.

5. Discussion, conclusion, and limitation

This study investigates whether environmental information disclosure affects firm valuation and if so, whether the effect is moderated by corporate governance. This research uses a sample of the non-financial firm listed in Indonesia Stock Exchange (ISE) for the 2015 financial year. This research founds that environmental information disclosure is positively influenced the firm valuation. Further analysis found that corporate governance moderate the effect of environmental information disclosure on firm valuation. Results of this study are supported by Wang (2016) who found that environmental information disclosure affects firm valuation with corporate governance as moderating variable.

This research proves that corporate governance is one important factor in strengthening the influence of environmental information disclosure on firm valuation. This research supports the development of construct that has been built by Wang (2016) about environmental information disclosure. Wang (2016) tests this construct in the context of the Taiwan and the research is still in early stages of development, especially in Asia. Thus, this study also provides evidence that the constructs were built by Wang (2016) have also been shown empirically in the context of Indonesia.

Community awareness of the better environment can be seen from the many organizations of environmentalists and the growing regulations/standards on environmental accounting. Accounting has been linked to environmental issues and that environmental issues will be further integrated into accounting practices in the near future (Hopwood, 2009; Wang, 2016). The implication is that firm will encourage management to pay more attention and disclose non-financial aspects, especially environmental information (Wang, 2016). And most important thing in this study, environmental protection has become an important concern for governments in various countries as well as for society. Chen (2010) argues that companies can survive in the long term if companies can reduce environmental risks and pay attention to corporate governance roles. This demonstrates the importance of disclosure of environmental information and issues of corporate governance in the future (Wang, 2016).

Although the study has reached its objectives, the finding of the study needs to be interpreted with the following study limitation in mind. First, the sample of the study is only a small number of the firms in Indonesia Stock Exchange (ISE). Thus, the generalisability of the results is limited. Future studies may extend their investigation to a larger sample. Second, this research only studied one antecedent of firm valuation. Future research should add another variable such as voluntary environmental disclosure quality which are antecedent variables of firm valuation (Plumlee et al, 2010). Future study can also add another variable related to corporate governance elements that may able to influence firm valuation such as quality (reputation) of outside directors (Bushman et al., 2004).

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